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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/555,408

11/01/2005

Ahmed El-Sayed Ahmed

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KLARQUIST SPARKMAN, LLP
121 SW SALMON STREET
SUITE 1600
PORTLAND, OR 97204

EXAMINER

KANAAN, SIMON P

ART UNIT

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4148

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/555,408	Applicant(s) AHMED ET AL.	
	Examiner SIMON KANAAN	Art Unit 4148	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/01/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/09/2006 09/06/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The instant application having Application No. 10555408 filed on 11/01/2005 is presented for examination by the examiner.

Oath/Declaration

2. The applicant's oath/declaration has been reviewed by the examiner and is found to conform to the requirements prescribed in **37 C.F.R. 1.63**.

Priority

3. As required by **M.P.E.P. 201.14(c)**, acknowledgement is made of applicant's claim for priority based on applications filed on May 2, 2003 (PCT/CA2004/000669).

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

4. The applicant's drawings submitted are acceptable for examination purposes.

Information Disclosure Statement

5. The information disclosure statement (IDS) submitted on May 9, 2006 was filed after the mailing date of the 11/01/2005. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Specification

6. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

7. As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Objections

8. Claim 2 stating: (Original) The user verification system of claim 1, wherein said system is suitably configured for real-time monitoring. is objected to because it is different from the original claim which states: The user verification system of claim 1, wherein said system is suitably configured for dynamic monitoring. Hence, it is not original.

9. Appropriate correction is required.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1, 2, 6, 9, 10, 11, 12, 15 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Brown et al. (US Patent Number 5,557,686)

As per claim 1, Brown et al. discloses: a behavioral biometrics based user verification system for use with a motion based input device, said system comprising a data interception unit for receiving inputs from a user (*column 2 lines 15-19, collecting samples containing typing characteristics of an authorized user based on key press times and key release times is a behavioral biometrics based system which intercepts data from a user*), a behavior analysis unit operatively coupled to said data interception unit (*column 2 lines 20-22, vectors constructed for purifying the samples are behavioral analysis units since they contain behavioral data*), and a behavior comparison unit operatively coupled to said interception unit, wherein said system translates behavioral biometrics information into representative data. (*column 2 lines 28-29, the neural network trained to output whether an input is from an authorized user is representative data of biometric information*), stores and compares different results, and outputs a user identity result (*column 2 lines 30-32 and 38-38, the user typing the previously determined keystroke*

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sequence into the neural network then having the neural network determine whether the user is authorized, is storing and comparing the different results and outputting the user identity result).

As per claim 2, Brown et al. discloses: The user verification system of claim 1, wherein said system is suitably configured for real-time monitoring (*column 13 lines 52-55, system notifying a system operator that user has not passed keystroke is real-time monitoring*).

As per claim 6, Brown et al. discloses: The user verification system of any one of claim 1, wherein said data interception unit is configured to identify actions from a keyboard on the basis of dwell time and flight time such that in use, said system receives data from a keyboard (*column 2 lines 19-23, measuring the key press times and key release times gives the key dwell and flight times, this information is stored in vectors and fed into the neural network*).

As per claim 9, Brown et al. discloses: A method of characterizing a user comprising the steps of moving a motion-based input device, dynamically monitoring and passively collecting behavioral biometric information from said device, (*column 2 lines 15-19, a keyboard is a motion-based input device which is used to collect data*), a processing said information, (*column 2 lines 20-22, vectors constructed for purifying the samples are behavioral analysis units since they contain behavioral data and column 2 lines 28-29, the neural network trained to output whether an input is from an authorized user is representative data of biometric information*), and modeling said data using suitably selected algorithms to develop a signature for a user (*column 2 lines 30-32 and 38-38, the user typing the previously determined keystroke sequence into the*

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neural network then having the neural network determine whether the user is authorized is a model of users signature).

As per claim 10, Brown et al. discloses: The method of claim 9, further comprising comparing said signature with a signature of an authorized user (*column 2 lines 30-32 and 38-38, the user typing the previously determined keystroke sequence into the neural network then having the neural network determine whether the user is authorized is a model of users signature).*

As per claim 11, Brown et al. discloses: The method of claim 10, further comprising filtering said data after processing and before modeling to reduce noise (*column 4 lines 30-35, purifying users input files is filtering the processed data before modeling and reduces noise.*).

As per claim 12, Brown et al. discloses: The method of any one of claims 11, further comprising collecting, processing and modeling said data in real-time (*column 14 lines 7-18, continuously updating the users profile with new samples is a method which collects, processes and models data in real-time.*).

As per claim 15, Brown et al. discloses: The method of any one of claim 9, further characterized as using a keyboard, collecting data from said keyboard, processing said data, and modeling said data using suitably selected algorithms to develop a signature for a user (*column 2 lines 30-32 and 38-38, the user typing the previously determined keystroke sequence into the*

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neural network then having the neural network determine whether the user is authorized, is storing and comparing the different results and outputting the user identity result).

As per claim 16, Brown et al. discloses: The method of claim 15, wherein said collecting data is further comprises characterizing movement based on flight time and dwell time (*column 2 lines 19-23, measuring the key press times and key release times gives the key dwell and flight times*).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al. in view of Boebert et al. (US Patent Number 5,596,718) .

As per claim 3, Brown discloses: the limitations of claim 2 but fails to disclose expressly: further comprising secure communication protocols operatively couple to said data interception unit.

Boebert discloses: “further comprising secure communication protocols operatively couple to said data interception unit”; (column 3 lines 26-29, an inserted trusted path between input/output devices and work station is a secure communication protocol between the system and data interception).

Brown and Boebert are analogous art because they are from the same field of endeavor of computer authentication.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the secure communication between input device and system of Boebert with the behavioral biometric based system of Brown because it would deter malicious hard ware or software from emulating and listening to the communication path between the user and system (Boebert, column 1 lines 30-35).

14. Claims 4, 5, 7, 8, 13, 14, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al. in view of Akiyama et al. (US Patent Number 5,768,387) .

As per claims 4, 5, 7 and 8, Brown discloses: the limitations of claims 1 and 6 but fails to disclose expressly the limitation in claims 4 and 7: “wherein said data interception unit is configured to identify data from a mouse as one of movement, drag and drop, point and click, and silence, such that in use, said system receives data from a mouse [and from a keyboard, additional limitation in claim 7]” and the additional limitation in claims 4 and 8: “wherein said data interception unit is further configured to characterize movement based on at least one of average speed, average traveled distance, and direction of movement.”

Akiyama discloses: “wherein said data interception unit is configured to identify data from a mouse as one of movement, drag and drop, point and click, and silence, such that in use, said system receives data from a mouse [and from a keyboard, additional limitation in claim 7]” *(figure 8 and column 11 lines 42-46, the input device is a mouse and the tracks of the mouse movement are detected, tracks are the path of the mouse and hence are the direction of*

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movement.) Akiyama also discloses: wherein said data interception unit is further configured to characterize movement based on at least one of average speed, average traveled distance, and direction of movement. (figure 8 and column 11 lines 42-46, the input device is a mouse and the tracks of the mouse movement are detected, tracks are the path of the mouse and hence are the direction of movement).

Brown and Akiyama are analogous art because they are from the same field of endeavor of computer authentication.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Brown with the teaching of Akiyama in order to provide input devices as a keyboard or a mouse, or both as pointed out in Akiyama. *(Akiyama, column 11 lines 39-41, input devices can be keyboard and mouse)*

As per claims 13 and 14, Brown discloses: the limitations of claim 9 but fails to disclose expressly: “further characterized as moving a mouse, collecting data from said mouse, processing said data, and modeling said data using suitably selected algorithms to develop a signature for a user.” and “wherein said collecting data further comprises characterizing movement based on at least one of average speed, average traveled distance, and direction of movement”

Akiyama discloses: “further characterized as moving a mouse, collecting data from said mouse, processing said data, and modeling said data using suitably selected algorithms to develop a signature for a user”. *(figure 8 and column 11 lines 42-46, the input device is a mouse, data is collected and processed and displayed in a graph, the graph determines the user’s*

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identity) and “wherein said collecting data further comprises characterizing movement based on at least one of average speed, average traveled distance, and direction of movement” (*figure 8 and column 11 lines 42-46, the input device is a mouse and the tracks of the mouse movement are detected, tracks are the path of the mouse and hence are the direction of movement*).

Brown and Akiyama are analogous art because they are from the same field of endeavor of computer authentication.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Brown with the teaching of Akiyama in order to provide input devices as a keyboard or a mouse, or both as pointed out in Akiyama. (*Akiyama, column 11 lines 39-41, input devices can be keyboard and mouse*)

As per claims 17 and 18 Brown discloses: the limitations of claim 15 but fails to disclose expressly: “further characterized as moving a mouse, collecting data from said mouse, processing said data, and modeling said data using suitably selected algorithms to develop a signature for a user based on both mouse and keyboard data.” and “wherein said collecting data further comprises characterizing movement based on at least one of average speed, average traveled distance, and direction of movement”

Akiyama discloses: “further characterized as moving a mouse, collecting data from said mouse, processing said data, and modeling said data using suitably selected algorithms to develop a signature for a user based on both mouse and keyboard data.” (*figure 8 and column 11 lines 42-46, the input device is a mouse, data is collected and processed and displayed in a graph, the graph determines the user’s identity, column 3 lines 10 through 14, the input device is*

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a keyboard and pressing the keys give the users identity and “wherein said collecting data further comprises characterizing movement based on at least one of average speed, average traveled distance, and direction of movement” (figure 8 and column 11 lines 42-46, the input device is a mouse and the tracks of the mouse movement are detected, tracks are the path of the mouse and hence are the direction of movement) and (column 11 lines 39-41, input devices can be keyboard and mouse).

Brown and Akiyama are analogous art because they are from the same field of endeavor of computer authentication.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Brown with the teaching of Akiyama in order to provide input devices as a keyboard or a mouse, or both as pointed out in Akiyama. (*Akiyama, column 11 lines 39-41, input devices can be keyboard and mouse*)

Conclusion

15. The following prior art made of record and not relied upon is cited to establish the level of skill in the applicant's art and those arts considered reasonably pertinent to applicant's disclosure. See **MPEP 707.05(c)**.

16. The following reference teaches execution of trial data

Keystroke dynamics as a biometric for authentication, Future generations computer systems. Elsevier Science Publishers, Amsterdam, NL, Vol. 15, no. 4, February 2000 (2000-02), XP004185847, ISSN: 0167-739X

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17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Simon Kanaan whose telephone number is (571) 270-3906. The examiner can normally be reached on Monday to Friday 8:30 AM to 5:00 PM.

18. If attempts to reach the above noted Examiner by telephone are unsuccessful, the Examiner's supervisor, Thomas Pham, can be reached at the following telephone number: (571) 272-3689.

19. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

August 20, 2008

Simon Kanaan
Examiner
Art Unit 4148

SPK

/THOMAS K PHAM/
Supervisory Patent Examiner, Art Unit 4148